

ABSTRACT OF THE DISCLOSURE

Game software (programs and data) for use in portable game systems are distributed in encrypted form in ROM cartridges and/or other non-volatile storage such as optical disc cartridges to protect the software from being copied by software pirates. A cryptographic key for decrypting the software is stored in encrypted form in a first crypto processor in each cartridge which doubly encrypts the encrypted key to transmit it to a second crypto processor that is hard wired in the portable game system. This second crypto processor decrypts the encrypted programs and executes them without revealing the programs. Although some of the software may be unencrypted and be executed and processed in conventional processor(s) in the portable game system, this unencrypted software is useless without the decrypted software that is executed in the second crypto processor. Such hidden programs may generate partially processed game data, such as locations and directions of objects and points of view, which is further processed by the conventional processor(s) in the portable game system to generate pixel display data for display on an LCD screen. The portable game system may remain an open system for non-crypto cartridges. Although pirates can make unlimited copies of the encrypted and non-encrypted software and perhaps distribute them on the Internet, the encrypted software cannot be decrypted and executed without the two crypto processors which cannot be copied without knowledge of the inaccessible secret keys. An alternative method requires one crypto processor and each copy of the encrypted software is encrypted differently so that it can be decrypted and executed in only one crypto processor.